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BOARD OF EDITORS { Mr. Horace E. Smith, Chief Clerk of Weather Bureau, Professors Henry A. Hazen, Thomas Russell, and Charles F. Marvin, and Mr. Edward B. Garriott, in charge of Review Room.

INTRODUCTION.

This REVIEW is based on reports for May, 1892, from 2,891 regular and voluntary observers. These reports are classified as follows: 160 reports from Weather Bureau stations; 47 reports from United States Army post surgeons; 1,946 monthly reports from state weather service and voluntary observers; 229 reports through the Central Pacific Railway Company; 477 marine reports through the co-operation of the Hydrographic Office, Navy Department; 32 reports from Canadian stations; marine reports through the "New York Herald Weather Service;" monthly reports from local weather services established in all states and territories, except Idaho; and international simultaneous observations. Trustworthy newspaper extracts and special reports have also been used.

CHARACTERISTICS OF THE WEATHER FOR MAY, 1892.

From the Mississippi River to the Rocky Mountains cold and wet weather interfered with farming operations. Immense damage to property was caused by floods in the Mississippi River and tributaries.

TEMPERATURE.

Unusually cool weather prevailed over the interior of the country, and in the Missouri and Red River of the North Valleys, on the middle-eastern slope of the Rocky Mountains, and over the middle and northern plateau regions the month was the coolest May on record. The principal cool wave of the month swept over the Southern States from the 22d to 24th, causing slight damage to vegetation by frost in northern parts of the Gulf States.

PRECIPITATION.

In interior districts the monthly precipitation was generally in excess. The most marked deficiency was shown over the Gulf and south Atlantic states. In eastern New York, the lower lake region, at points in the Ohio, middle and upper Mississippi valleys, and at Spokane, Wash., Red Bluff and Los Angeles, Cal., the precipitation was the greatest ever recorded for May. At Pensacola, Fla., the precipitation was the least ever noted for May. From the 2d to the 4th a heavy snowstorm prevailed over eastern Wyoming and western Nebraska, causing considerable loss of stock on the ranges. On the 19th a severe snowstorm occurred in southern, central, and northwestern Wisconsin. On the 20th and 21st a snowstorm, with high wind, visited western and northern New England.

LOCAL STORMS.

In the central valleys the month was marked by numerous severe local storms. The tornadoes in south-central Kansas on the 27th were notably destructive to life and property. At Wellington, Kans., twelve persons were reported killed, and three lives were lost near Harper, Kans. On the 31st six persons were reported killed by tornadoes in central Texas. Tornadoes were reported in Oklahoma Territory on the 2d and 12th, at Eureka, Kans., on the 13th, near Allison, Kans., and Mangum, Okla., on the 16th, near Olney, Ill., on the 28th, and at Independence, Kans., on the 30th.

FLOODS.

Destructive floods occurred along the middle and lower Mississippi River and tributaries throughout the greater part of the month. The more important Mississippi levees held firm. About 60,000 acres of cultivated land in the American Bottom, opposite Saint Louis, Mo., were submerged. Water from crevasses inundated plantations in various parts of Louisiana. The Mississippi River reached high-water mark at New Orleans, La. The Missouri River flooded low-lying parts of Kansas City, Mo., and suburbs. Great devastation by flood was reported along the Illinois River. On the 18th a flood in the Floyd Valley, Iowa, resulted in the loss of about twenty lives, and destruction of property to the estimated value of $1,000,000. The Arkansas River reached the highest stage ever known at Fort Smith, Ark., and overflowed about 10,000 acres of cultivated land in that section. At Little Rock, Ark., the stage of water was the highest reached since 1844, and plantations above and below that place were reported under water. Destructive floods occurred along the Red River, in Texas and Louisiana. At Shreveport, La., the river reached the highest stage ever noted at that port, and large areas in Bossier parish were submerged. At the close of the month the Willamette River was over the lower docks at Portland, Oregon.

AURORAS.

The principal auroral display of the month was observed from New England to Montana and southward to Missouri and Oklahoma Territory the night of the 18–19th. In New England the display was very brilliant, and, at its height, covered nearly the entire sky, with a well-defined corona near the zenith.

ATMOSPHERIC PRESSURE (expressed in inches and hundredths).

The distribution of mean atmospheric pressure for May, 1892, as determined from observations taken daily at 8 a. m. and 8 p. m. (75th meridian time), is shown on Chart II by isobars.

In May the mean pressure is usually highest on the Oregon coast, where it is 30.05, and it is 30.00 and above in districts south of the Ohio and east of the Mississippi rivers. The normal pressure for May is lowest over the west part of the

southern plateau region and in the upper Missouri Valley, where it is below 29.90. In May there is usually a decrease of pressure, except on the north Pacific coast, and from the Ohio Valley over the middle Atlantic and New England states. The most marked decrease occurs from the lower Colorado valley over southern California and the San Joaquin and Sacramento valleys, and in the upper Missouri and Red River of the North valleys, where it is more than .05, and the greatest increase is shown over eastern New England, where it exceeds .05.

In May, 1892, the mean pressure was highest along the south Atlantic and east Gulf coasts and over the Florida Peninsula, where it was above 30.05, and the mean readings were above 30.00 in districts east of the Mississippi River and south of the 40th parallel, in an area extending from the middle Saskatchewan valley to Nebraska, and along the Pacific coast north of the 40th parallel: The mean pressure was lowest over the southern plateau region and on the southeast slope of the Rocky Mountains and thence to the upper Mississippi valley, where it was below 29.90.

A comparison of the pressure chart for May, 1892, with that of the preceding month shows a decrease of pressure, save over eastern New England and the Canadian Maritime Provinces, and in an area extending from the upper Saskatchewan valley to Nebraska and the extreme north Pacific coast, where the pressure was higher than for the preceding month. The most marked decrease of pressure occurred over Lower Michigan, where it was .15, and the decrease was more than .10 from eastern Manitoba to the middle Atlantic coast and on the middle and south Pacific coasts. The greatest increase of pressure was noted over the Canadian Maritime Provinces, where it was .05 to .10.

The mean pressure was above the normal in the middle and northern Rocky Mountain and plateau regions, in the middle and upper Missouri and Red River of the North valleys, over the south Atlantic and east Gulf states and Tennessee, and on the southeast New England coast, the greatest departure being noted from North Dakota over the Saskatchewan Valley, where it was more than .10. From the Saint Lawrence Valley and the Lake region southwestward to the Rio Grande Valley, and along the Pacific coast north of the 35th parallel the mean pressure was below the normal, the most marked departure being shown in western Oregon, where it was .05.

HIGH AND LOW AREAS.

The paths of areas of high and low pressure over the United States and Canada during May, 1892, are shown on Charts IV and I, respectively, and some of the prominent characteristics of the areas are given in the table at the end of this chapter.

HIGH AREAS.

Eight high areas appeared, the average number traced for May during the last 18 years being 6.6. Of the high areas traced for the current month 2 advanced from the north Pacific coast, 3 appeared over the British Northwest Territory, and 3 were first located in the upper Missouri valley. The Pacific coast areas moved to the Gulf of Mexico, and one, number VI, is traced thence off the south Atlantic coast. Of the British America high areas, one advanced to the Canadian Maritime Provinces, one disappeared off the North Carolina coast, and one occupied the Red River of the North Valley at the close of the month. The high areas from the upper Missouri valley passed southeastward and disappeared off the south Atlantic coast. The following is a description of the high areas traced:

I.—The month opened with high pressure over the Saskatchewan Valley, and freezing weather in the Dakotas and Montana. Settling southward this high area occupied eastern Montana and eastern Wyoming on the 3d. By the morning of the 4th it had passed to Iowa, with pressure above 30.20. At this report a ridge of high pressure extended from the Saskatchewan Valley to the east Gulf and south Atlantic coasts. By the evening report of the 4th the pressure was high from the Lake region to the southeastern coasts, with three centers of higher pressure showing readings above 30.20, one over Lake Huron, one over southeastern Tennessee, and one off the Georgia and north Florida coasts. On this date the temperature fell decidedly from eastern Tennessee to the lower lakes, with rain over the greater part of that region. By the morning of the 5th the pressure had decreased rapidly in the middle and lower Ohio valleys and the southwestern Lake region, and the ridge of high pressure extended from eastern Ontario to the south Atlantic coast, with highest pressure northeast of Lake Superior, where it was 30.40. During the 5th this ridge of high was divided by an area of low pressure which advanced over the upper Mississippi valley. By the morning of the 6th the high pressure area had disappeared, and the area of low pressure referred to occupied the Lake region.

II.—Advanced from the British Northwest Territory and occupied the Saskatchewan Valley on the 6th, with pressure above 30.40. During the 7th this high area advanced to the region north of Lake Superior with pressure above 30.50, and freezing weather was reported in Upper Michigan. From the 7th to the 9th the area remained north of Lake Superior, with pressure rising above 30.60. On the 8th the lowest temperature of the month was noted from the eastern Lake region and the upper Ohio valley to the New Jersey coast, and on the 9th the lowest temperature of the month occurred in the District of Columbia, Virginia, and the interior of North Carolina. During the 10th the center passed southeastward over the Canadian Maritime Provinces, and the morning of the 11th occupied the ocean off Nova Scotia.

III.—Appeared over the Saskatchewan Valley on the 10th, with pressure above 30.40. On this date the lowest temperature of the month was noted at stations on the middle and southeast slopes of the Rocky Mountains, and light frost was reported at Dodge City, Kans. During the 11th the high area passed to Manitoba, with a marked decrease of pressure, and during the 12th moved southeastward over the Lake region to the upper Ohio valley, with pressure above 30.20. On the 13th the center passed eastward off the middle Atlantic coast, with pressure above 30.30.

IV.—Appeared central over western Nebraska the evening of the 14th, with pressure above 30.10, passed to Arkansas during the 15th, and disappeared off the south Atlantic coast during the 16th, with highest pressure, 30.32, at Atlanta, Ga., at the morning report of the 15th.

V and VI.—Appeared off the middle Pacific coast on the 16th, and the morning of the 17th was central on the north Pacific coast, with pressure above 30.40. Extending rapidly southeastward a branch of this high area reached Texas by the evening of the 18th, when a ridge of high pressure occupied districts lying between the west Gulf and north Pacific coasts. During the 19th this ridge of high pressure was divided by a low pressure area which had advanced from the southern plateau region, one part of the high area, number V, passing over the Gulf of Mexico, and the other, high area VI, advancing from the north Pacific coast to the northeast slope of the Rocky Mountains. On the 20th number VI remained nearly stationary over northeastern Montana, with pressure 30.60, the temperature was below freezing in Minnesota, and the lowest temperature of the month was reported in the extreme upper Mississippi and Red River of the North valleys. During the 21st the high area settled southward over the Dakotas with a marked decrease of pressure, and the lowest temperature of the month was noted in the lower Missouri, middle Mississippi, and middle and lower Ohio valleys. During the 22d the center moved southward to Oklahoma Territory, and the lowest temperature of the month occurred in the middle and west Gulf states. On the 23d the high area reached the Gulf of Mexico, and during the 24th disappeared off the south Atlantic coast, attended by the lowest temperature of the month in the east Gulf and south Atlantic states. The low temperature of the 22d to 24th caused slight

damage to tender vegetation at points from North Carolina to Texas.

VII.—Appeared over the Dakotas and Nebraska the morning of the 26th, and by the evening of the 27th had advanced to Indiana, from which region it passed southeastward and disappeared off the North Carolina coast during the morning of the 28th. This high area was unattended by noteworthy features, the highest pressure, 30.10, being noted on the North Carolina coast on the 28th.

VIII.—Moved slowly eastward over and north of Montana and North Dakota during the last two days of the month, with highest pressure, 30.20, in the Red River of the North Valley on the 31st.

LOW AREAS.

The low areas of May advance eastward over the United States at an average velocity of 25 statute miles per hour, the average velocity for May, June, and July being the lowest of the year. A large proportion of the storms of May move from the middle and northeast slopes of the Rocky Mountains to eastern Ontario, from which region they advance to Newfoundland. An average of less than one storm per month advances from the north Pacific coast and traverses the continent.

The tracks of 11 low areas are plotted on Chart I for May, 1892, the average number traced for May during the last 18 years being 6.6. Three of the low areas advanced from the Pacific coast, 3 advanced from the Saskatchewan Valley, and 5 advanced from the southeast slope of the Rocky Mountains. Two of the Pacific coast low areas reached the Atlantic coast. The low areas of the first and second decades of the month followed a course from Oklahoma Territory and Kansas to the Lake region, and those traced for the last 11 days of May were confined principally to British America and the Atlantic coast. The average velocity of the low areas, 28 miles per hour, was 4 miles per hour greater than the average rate of advance of low areas for May. A description of the more important storms that attended the low areas is given under "Local storms." The following is a description of the low areas of the month:

I.—Was a continuation of low area VIII for April, 1892, and at the opening of the month was central over Kansas, with pressure below 29.70. On the 1st a trough of low pressure extended from the western Lake region to New Mexico, and the pressure was high in the Saskatchewan Valley and along the Atlantic coast, rain fell from the Missouri Valley to New England, heavy thunder, rain, and hail storms occurred in Missouri, Iowa, eastern South Dakota, Illinois, Indiana, and northern Ohio, and high winds were reported in southern and central Kansas. By the morning of the 2d an offshoot from this low area had reached Lower Michigan, and a new development, low area II, appeared central over extreme northwestern Texas. The evening report of the 2d indicated that the Michigan low area had dissipated over the lower lakes or Pennsylvania, with heavy thunder, rain, and wind storms in the Ohio Valley.

II.—Was central near the Panhandle of Texas the morning of the 2d with pressure 29.70, and moved to eastern Kansas by the evening report of that date, with an apparent increase of energy. On this date rain fell northeast of the center, tornadoes were reported in Oklahoma Territory and southeast Kansas, and heavy thunder and hail storms occurred in eastern Kansas and western Missouri. During the 3d the center moved northeastward to the Lake Huron region, with pressure below 29.60, the rain area extended from the lower Missouri valley to New England and New Jersey, the wind reached a velocity of 60 miles per hour from the southwest at Chicago, Ill., and severe local storms occurred in the middle Mississippi and Ohio valleys, the lower lake region, and western New York. By the evening of the 4th the center reached the lower Saint Lawrence river, with a slight increase of central pressure, and rain was followed by clearing weather in the Lake region.

III.—During the 3d the pressure was low over the central valleys of California, and the evening report showed this low area central over northern California, with pressure below 29.70. The morning of the 4th a trough of low pressure extended from the north Pacific coast to New Mexico, with lowest pressure, 29.54, at Baker City, Oregon. By the evening of the 4th this trough of low pressure had been divided by an area of high pressure which appeared on the south Pacific coast, and two cyclonic centers were shown, one, number III, near the Panhandle of Texas, and the other over eastern Washington and eastern Oregon. The rain area which covered California the morning of the 4th had extended to the middle Mississippi valley, the rainfall was very heavy in eastern Kansas, western Missouri, and southern Iowa, and a wind velocity of 60 miles per hour from the south was noted at Amarillo, Tex. Moving northeastward with a loss of energy this low area had divided by the morning of the 6th, one cyclonic center appearing over Upper Michigan and another over the Lake Erie region. During the 6th the low area dissipated, one part over western Pennsylvania and the other in the Lake Superior region. On the 5th the rain area reached western New England, and destructive wind, rain, hail, and thunder storms were reported in the middle Mississippi and middle and lower Ohio valleys. On the 6th severe thunderstorms occurred in the middle Atlantic states.

IV.—Advanced from the north Pacific coast during the 6th, with pressure below 29.80 over northeastern Oregon at the evening report. On this date rain fell in the Pacific coast states and over west parts of the middle and northern plateau regions, and heavy rain and severe local storms were reported in central and northwestern Texas at night. During the 7th the center advanced to northern New Mexico, with pressure below 29.70, and rain fell from the north Pacific coast to Texas. During the 8th the low area remained nearly stationary over northern Texas and Oklahoma Territory, its advance being impeded by an area of high pressure which extended from the Lake region to the south Atlantic coast.

On this date rain fell generally in the central valleys west of the Mississippi River, severe local storms occurred from central Texas to western Arkansas and western Missouri, and a wind velocity of 66 miles per hour from the southwest was reported at Abilene, Tex. On the 9th the high area to the east and northeast gave way and the center of disturbance advanced to Missouri, with an apparent loss of energy. Rain fell generally throughout the central valleys and on the middle and west Gulf coasts, and severe local storms occurred in southern Missouri, Arkansas, and western Tennessee.

Passing northeastward the center reached Lake Michigan the evening of the 10th, with pressure below 29.70. The rain area reached the Atlantic coast south of New England, and destructive local storms occurred in the Ohio Valley and Tennessee. The morning report of the 11th showed two cyclonic centers with pressure 29.60, one near Grand Haven, Mich., and the other near Toronto, Ont., and at the evening report the low area was central over eastern New York. On this date the rain area extended over New England, and unusually severe hailstorms occurred in west-central Maryland. During the 12th the center moved eastward and disappeared off the Nova Scotia coast.

V.—Occupied New Mexico and northwestern Texas during the 12th and 13th. On these dates severe local storms occurred in eastern Kansas, Oklahoma Territory, Arkansas, and southern Missouri. By the evening report of the 14th the center had advanced to southern Iowa. The rain area extended from the middle Rocky Mountain region to the middle Atlantic coast, and heavy thunder and wind storms occurred from Texas to the lower Ohio valley. During the 15th the center of disturbance moved northeastward over the upper lake region, with pressure below 29.80, the rain area extended over New England, and heavy wind, thunder, and rain storms occurred in Ohio, West Virginia, and Pennsylvania. During the 16th this low area passed eastward to the Gulf of Saint Lawrence, with pres-

sure below 29.60. In the Lake region, the Ohio Valley, and the Atlantic coast states the weather was clearing.

VI.—Was central on the Oregon coast the morning of the 15th with pressure below 29.60, and moved thence to Alberta by the evening report. On this date rain fell on the middle and north Pacific coasts and over the west parts of the middle and northern plateau regions, and the wind reached a velocity of 50 miles per hour from the southwest at Keeler, Cal. On the 16th a trough of low pressure extended along the eastern slope of the Rocky Mountains, with three cyclonic centers at the evening report, one in the Saskatchewan Valley, one over northwestern Nebraska, and a third over the Panhandle of Texas. On this date rain fell in areas between the middle and upper Mississippi river and the Rocky Mountains, and destructive local storms occurred in Kansas, Oklahoma Territory, northern Texas, and western Missouri. On the 17th the center remained over the lower Missouri valley, with pressure below 29.60, rain fell throughout the central valleys, and local storms occurred in the middle and upper Mississippi and lower Ohio valleys.

During the 18th the center advanced to southwestern Wisconsin, with pressure below 29.30, the rain area reached the middle Atlantic coast, heavy northwest gales prevailed in Kansas, South Dakota, Iowa, and Missouri, and severe thunderstorms were noted in Ohio and Tennessee. During the 19th the center remained nearly stationary over southern Lake Michigan, with pressure 29.20 at Milwaukee, Wis., in the morning. The evening report showed a subsidiary development on the middle Atlantic coast. Rain fell generally from the middle Atlantic and south New England coasts to the Rocky Mountains, strong gales prevailed over the Lake region, and snow was reported in northern Wisconsin and northern Minnesota.

On the 20th this low area moved northward to the Lake Superior region with a marked loss of energy, and the subsidiary on the middle Atlantic coast passed eastward, rain was general in districts east of the Rocky Mountains, save in extreme south and southeast states, and snow fell in the upper Mississippi and Red River of the North valleys and in northern New England. The morning of the 21st a trough of low pressure extended from the eastern Lake region to the south Atlantic coast, with two cyclonic centers, one over Virginia and the other over northwestern Pennsylvania. By the evening report the centers had united off the middle Atlantic coast. On this date rain fell generally east of the Mississippi River, and severe thunder and hail storms occurred in North Carolina and Virginia.

VII.—Advanced from the southern plateau region and the evening of the 19th was central over west-central Texas, with pressure below 29.70. During the 20th this low area disappeared over the Gulf of Mexico, where its presence was indicated by reports of the 21st. On the 22d a low pressure area, which was probably a continuation of number VII, moved northeastward off the south Atlantic coast, with pressure 29.60 on the North Carolina coast at 8 p. m. During the 23d this low area advanced to the Maine coast, with pressure below 29.50. Rain fell in the Atlantic coast states, the upper Ohio valley, and the lower lake region, and a heavy hailstorm was reported in West Virginia. During the 24th this low area disappeared north of the Gulf of Saint Lawrence.

VIII.—Appeared in the Saskatchewan Valley the evening of the 21st, with pressure below 29.60, advanced to North Dakota during the 22d, and to Manitoba by the 23d. At the evening report of the 23d the pressure was below 29.60, and rain was reported in the valley of the Red River of the North. Moving rapidly eastward this low area disappeared northeast of the Gulf of Saint Lawrence during the 25th, its passage being attended by rain over the Lake region, the Ohio Valley, and New England.

IX.—Followed closely after number VIII, and the morning of the 25th was central north of Lake Superior with pressure below 29.50, and by the evening report of that date had advanced north of Lake Huron. Rain fell throughout the Lake region and the Ohio Valley, and severe local storms were reported in Lower Michigan, Ohio, Indiana, and western Pennsylvania. During the 26th the center moved slowly eastward north of the Lake region, rain fell from the lower Missouri valley to the middle Atlantic and New England coasts, and heavy thunder and hail storms occurred from the Ohio Valley and Tennessee to the middle Atlantic coast. By the evening of the 27th the center of disturbance had reached the lower Saint Lawrence valley with pressure below 29.40. The rain area contracted eastward and covered the middle Atlantic and New England states, thunderstorms were reported in the middle and south Atlantic states, and the wind velocity exceeded 50 miles per hour from the northwest on the North Carolina coast. By the morning of the 28th this low area had disappeared over the Gulf of Saint Lawrence.

X.—Appeared over the Saskatchewan Valley on the 26th with pressure below 29.60, passed slowly southeastward over Assiniboia during the 27th with pressure below 29.30 and rain in eastern Montana and the Red River of the North Valley, and was central over Manitoba on the 29th with pressure below 29.20. Moving slowly eastward with a decrease of energy this low area was central north of Lake Superior the evening of the 30th, after which it disappeared.

On the 26th, when this area appeared in the Northwest, a trough of low pressure extended southward over the Rocky Mountain region to western Texas, and severe local storms occurred in north-central Texas. The morning report of the 27th showed that the barometric depression running southward from the Saskatchewan Valley had deepened; the 12-hour pressure change exceeded .20 over the west part of Nebraska and the Dakotas, and the 24-hour pressure change was .40 to .50 in that region. The evening report showed a 12-hour decrease of pressure of .30 from northeastern Kansas to Manitoba.

A notable feature of this low area was the group of tornadoes and thunderstorms which extended from South Dakota to central Texas during the evening of the 27th. These storms were very severe, and the one which visited Wellington, Kans., was notably destructive to life and property. On the 28th the rain area extended over the central valleys and the western Lake region, and heavy thunderstorms were reported in Missouri and Illinois. During the 29th the rain area reached the Atlantic coast. A subsidiary development appeared over Oklahoma Territory at the evening report, heavy thunder and hail storms occurred in Kentucky, Tennessee, and Alabama, and severe local storms were reported in Oklahoma Territory and adjoining parts of Kansas and Missouri.

XI.—Appeared on the southeast slope of the Rocky Mountains on the 29th, and the evening of the 30th was apparently central over extreme western Texas, with pressure below 29.60, and heavy thunder and hail storms in Oklahoma, Kansas, Missouri, and Illinois. The morning of the 31st two cyclonic centers appeared, one over central Texas and the other over central Missouri. At the close of the month a trough of low pressure extended from Lake Michigan to the lower Rio Grande valley, with two cyclonic centers, one over western Illinois and the other over southeastern Texas. On this date rain fell generally from the western Lake region to the Rio Grande River, and severe local storms occurred from the west Gulf states to the lower Ohio valley and the southwestern Lake region.

Tabulated statement showing principal characteristics of areas of high and low pressure.

Barometer.	First observed.			Last observed.		Duration.	Velocity per hour.	Maximum pressure change in 12 hours, maximum abnormal temperature change in 12 hours, and maximum wind velocity.									
	Date.	Lat. N.	Long. W.	Lat. N.	Long. W.			Station.	Rise.	Date.	Station.	Fall.	Date.	Station.	Direction.	Miles per hour.	Date.
High areas.		°	°	°	°	*Days.*	*Miles.*		*Inch.*								
I	3	47	107	35	85	1.0	58	Rockliffe, Ont	.50	4	Saugeen, Ont	24	4	Chattanooga, Tenn	ne.	30	4
II	6	53	105	44	62	4.5	20	White River, Ont	.36	7	Davenport, Iowa	16	6	Chicago, Ill	n.	44	8
III	11	54	102	40	70	2.5	35	Sydney, C. B. I	.34	13	Calgary, N. W. T	20	11	Green Bay, Wis	n.	28	12
IV	14	42	104	32	79	2.0	35	Montrose, Colo	.34	14	Palestine, Tex	19	15	Hatteras, N. C	sw.	22	16
V	17	45	125	28	93	2.0	44	Roseburgh, Oregon	.32	16	Saint Paul, Minn	23	18	Galveston, Tex	n.	30	18
VI	18	48	125	32	78	6.0	27	Green Bay, Wis	.42	20	Tucson, Ariz	26	19	Amarillo, Tex	n.	40	21
VII	26	47	97	35	77	1.5	41	Rockliffe, Ont	.34	28	Pittsburg, Pa	15	26	Hatteras, N. C	n.	36	28
VIII	30	50	108	49	96	1.5	18	Winnipeg, Man	.38	30	Abilene, Tex	35	31	Bismarck, N. Dak	nw.	28	30
Mean						2.7	35		.37			22				32	
Low areas.									Fall.			Rise.					
I	1	38	100	43	85	1.0	37	Montreal, Quebec	.40	1	Dubuque, Iowa	16	1	Chicago, Ill	sw.	60	3
II	2	37	98	49	69	2.5	24	Chatham, N. B	.36	4	New York, N. Y	24	4	Buffalo, N, Y	sw.	44	3
III	3	41	123	47	87	2.5	40	Dodge City, Kans	.30	4	Kansas City, Mo	26	5	Amarillo, Tex	s.	60	4
IV	6	45	118	43	66	5.5	28	Toronto, Ont	.34	10	Montrose, Colo	16	6	Abilene, Tex	sw.	66	8
V	14	30	99	49	64	2.5	37	Eastport, Me	.38	16	Duluth, Minn	16	15	Boston, Mass	w.	36	16
VI	15	45	123	42	69	7.0	27	Erie, Pa	.36	18	Roseburgh, Oregon	17	16	Fort Canby, Wash	s.	60	16
VII	19	32	101	28	98	0.5	30	Abilene, Tex	.28	19	Tucson, Ariz	32	18	Abilene, Tex	sw.	48	19
VIII	21	52	112	50	66	3.5	27	Swift Current, N. W. T	.52	21	Cheyenne, Wyo	26	22	Block Island, R. I	sw.	40	25
IX	25	50	88	50	65	3.0	19	Montreal, Quebec	.50	26	Father Point, Quebec	19	27	Kitty Hawk, N. C	nw.	53	27
X	26	53	108	50	87	4.0	11	do	.50	26	Miles City, Mont	15	26	Huron, S. Dak	se.	54	27
XI	30	33	103	29	99	1.0	30	Fort Smith, Ark	.14	30	Abilene, Tex	11	29	Corpus Christi, Tex	se.	48	31
Mean						3.0	28		.38			20				52	

NORTH ATLANTIC STORMS FOR MAY, 1892 (pressure in inches and millimeters; wind-force by Beaufort scale).

The paths of storms that appeared over the west part of the north Atlantic Ocean during May, 1892, are shown on Chart I. These paths have been determined from reports of observations by shipmasters received through the co-operation of the Hydrographic Office, Navy Department, and the "New York Herald Weather Service."

In May there is usually an increase of barometric pressure over the north Atlantic Ocean, save in the region of the Cape Verde Islands and over the West Indies and the Caribbean Sea, the increase being most marked over and east of the Banks of Newfoundland, when it is more than .20. The principal track of May storms is traced from Newfoundland north of east to the region north of the British Isles. Near the 40th meridian a track branches northeastward to Iceland, and west of the British Isles a path branches southeastward over the Bay of Biscay.

The storms of the current month were of small intensity and generally short-lived. Reports of the 1st showed two storms, one over the Banks of Newfoundland and the other west of the British Isles. Over mid-ocean the pressure was high. By the 2d the western storm had passed north of the region of observation; the one near the British Isles had advanced to the Bay of Biscay with evidence of considerable strength. This storm apparently remained central over or near the Bay of Biscay until the 4th, and the pressure continued high west of the 25th meridian. From the 5th to 14th the pressure continued high over the eastern part of the ocean.

On the 5th low area II advanced over the north part of the Gulf of Saint Lawrence, and on the 6th was central north of Newfoundland. This storm occupied the region east and northeast of the Banks of Newfoundland until the 11th, with an apparent increase of energy, after which it disappeared over mid-ocean in high latitudes. A storm also appeared central near the Azores on the 5th, and the pressure continued low over mid-ocean until the 12th. On the 12th low area IV was central near western Nova Scotia, from which position it moved northeastward and disappeared by the following date.

From the 13th to the 16th the pressure was high over mid-ocean, and high pressure continued over the western part of the ocean from the 14th to 16th. From the 15th to 17th the pressure was low north and west of the British Isles. On the 17th low area V advanced over northern Newfoundland, and on the 18th was central northeast of Newfoundland, and strong to whole gales prevailed along the trans-Atlantic tracks between the 30th and 40th meridians. On the 19th a storm appeared east of the Grand Banks, and moving thence northeastward disappeared over mid-ocean in high latitudes by the 21st. From the 17th until the close of the month the pressure continued generally low over mid-ocean. From the 22d to 24th a storm of moderate strength passed from the south Atlantic coast to the lower Saint Lawrence river. This storm probably moved eastward and reached the British Isles on the 29th, where low pressure prevailed from the 22d to the close of the month.

OCEAN ICE IN MAY.

The following table shows the southern and eastern limits of the region within which icebergs or field ice were reported for May during the last 10 years:

Southern limit.			Eastern limit.		
Month.	Lat. N.	Long. W.	Month.	Lat. N.	Long. W.
	° ′	° ′		° ′	° ′
May, 1883	40 30	47 00	May, 1883	45 40	45 12
May, 1884	41 30	47 30	May, 1884	43 30	44 50
May, 1885	40 50	48 15	May, 1885	42 30	40 10
May, 1886	41 36	51 30	May, 1886	48 55	46 13
May, 1887	39 38	46 00	May, 1887	39 38	46 00
May, 1888	41 00	46 00	May, 1888	41 00	46 00
May, 1889	43 07	55 47	May, 1889	49 46	36 48
May, 1890	40 50	50 28	May, 1890	44 12	36 25
May, 1891	40 49	49 07	May, 1891*	48 00	45 00
May, 1892	42 14	51 20	May, 1892	45 05	41 14
Mean	41 14	49 17	Mean	44 50	42 48

* On the 7th three small pieces of ice were reported in N. 49° 03′, W. 33° 40′.

The limits of the region within which icebergs or field ice were reported for May, 1892, are shown on Chart I by ruled shading.

The southernmost ice reported, icebergs observed on the 31st in the position given, was about 1° north of the average southern limit, and the easternmost ice reported, an iceberg noted on the 23d in the position given in the table, was about 1½° west of the average eastern limit of Arctic ice for May.

Ice was reported in great quantities along the southeast edge of the Banks of Newfoundland, and on the 31st a small